

THE MANAGER

FORAGE MANAGEMENT

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Impacts of
drought
conditions

Corn silage and nitrates in drought conditions: 2012 post mortem analysis

■ Concerns regarding nitrate levels in forages are raised whenever drought is experienced.

■ Nitrate levels are an important concern when pasture, green chop or dry hay supply a large part of the ration and when these crops are harvested in drought conditions.

■ In NY, nitrate levels have not been a problem in silage that was properly fermented. Silage fermentation normally reduces nitrate levels by at least 40 to 60%.

■ Nitrates are even less likely to be a problem when high nitrate feed is diluted across a whole ration. A nitrate-nitrogen value of < 0.1% (1000 ppm) is considered safe in the total ration. It is important to determine total ration nitrate-nitrogen level rather than looking only at the nitrate-nitrogen value of specific forage.

■ Nitrates, when available at levels above crop needs, tend to accumulate in the lower parts of the corn stalk, much of which is below typical cutting height. This allows us to look at CSNT samples (a section of stalk cut between 8 to 14" off the ground), normally taken to evaluate N management of individual fields, to also examine nitrate levels from a dairy ration standpoint.

■ In 2012, the Spear Program at Cornell University ran the CSNT on 923 corn samples provided by consultants and producers. We found very few samples to be high enough to be a concern. Of all samples analyzed in 2012, 14% exceeded 5000 ppm nitrate-N in the stalk. This percentage has been relatively stable in the past couple of years, ranging from 12% in 2009 to 16% in 2010.

■ The highest stalk nitrate level we saw from 2012 stalk samples was almost 17,000 ppm nitrate-

N, also similar to the highest level seen in previous years.

■ Results from the Dairyland Forage Lab in Wisconsin reported <1% of the 3,349 whole plant corn silage samples analyzed from July to late November were >4,000 ppm of nitrate-N. Whole plant nitrate levels are certainly lower than the CSNT samples above because nitrate accumulates in the lower portion of the stalk.

■ Based on this information and years of experience, we expect little or no problem with nitrate levels in corn silage used in dairy rations this year, or in future years.

■ If you are concerned here's what to do:

■ Test the forage after fermentation.

■ Calculate the expected nitrate level in the total ration. If the total ration nitrate-nitrogen value is <0.1% (1,000 ppm), there shouldn't be a concern.

■ Don't forget to calculate the nitrate-nitrogen contributed by the drinking water as part of the total ration calculation. In most cases, this will not be a concern.

■ Feed lower levels of the high nitrate-nitrogen content forage if the calculated total ration nitrate-nitrogen content is >0.1% (1,000 ppm).

Avoid feeding the high nitrate-N containing forages to pregnant heifers or cows. □

FYI

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